

ABSTRACT OF THE DISCLOSURE

An instruction pipeline for a DSP with fusing logic for combining multiple instructions into a single control word which can be executed by one execution unit. The pipeline fetches a greater number of instructions than the number of execution units to which it can issue instructions. It applies grouping rules to the instructions and also identifies pairs, or larger groups, of instructions which can be combined, or fused, into a single control word which can be executed by one execution unit. Issuance of a fused control word to a single execution unit effectively allows two or more instructions to be executed simultaneously in one execution unit.